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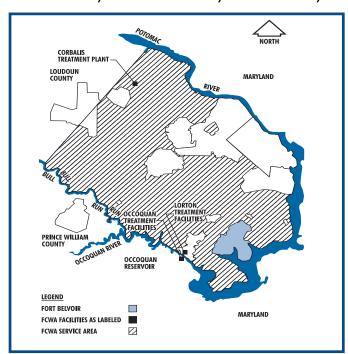
Fort Belvoir Annual Drinking Water Quality Report

TO OUR CUSTOMERS: We are pleased to report that your water meets or exceeds all standards set for quality and safety.

his is Fort Belvoir's annual report on water quality in accordance with the 1996 Safe Drinking Water Act. The data in this report are a result of drinking water quality testing performed in 1999.

What Is The Source of Your Drinking Water?

The drinking water Fort Belvoir distributes to its 23,500 consumers is purchased from the Fairfax County Water Authority. The Fairfax County Water Authority has



four drinking water treatment facilities located at opposite ends of Fairfax County that feed an interconnected distribution system. The Fairfax County Water Authority's James J. Corbalis, Jr. Treatment Plant serves the majority of northern Fairfax County. The James J. Corbalis Jr. Treatment Plant draws and treats water from the Potomac River just above Great Falls. The drinking water supply for Fort Belvoir and the southern part of Fairfax County is prima-

rily provided by the Occoquan Treatment Plant and the two Lorton Treatment Plants. They are located on the southern border of Fairfax County, and draw water from the Occoquan Reservoir and River.

Is Your Water Safe to Drink?

Absolutely! Fairfax County Water Authority monitors both the sources and distribution system up to the Fort Belvoir gates. Fort Belvoir's Environmental and Natural Resource Division monitors the distribution system on post. Based on this monitoring, your water complies with the standards set by the U.S. Congress in the Safe Drinking Water Act of 1974 and its revisions in 1986 and 1996.

All drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. Environmental Protection Agency (EPA) Safe Drinking Water Hot Line (800-426-4791).

The EPA regulates the amounts of various contaminants that are acceptable in public drinking water. The Virginia Department of Health enforces these regulations.

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Water Treatment

Water must be treated to be safe to drink. Treatment includes physical and chemical processes. When raw water from the river enters the treatment plant, chemicals classified as coagulants are added to make small particles adhere to one another and settle. The water is filtered to remove the particles that didn't settle. Chemicals are then added: chlorine to kill harmful bacteria and viruses, a corrosion inhibitor to minimize dissolution of lead used in older household plumbing, and fluoride to protect teeth. If the raw water has an odor or unpleasant taste, powdered activated carbon and potassium permanganate are added to the treatment process. Fort Belvoir receives chlorinated water and distributes it on post. Fort Belvoir monitors this water and adds additional chlorine if necessary to ensure a chlorine residual is maintained throughout the distribution system. The presence of chlorine in the distribution system inhibits the growth of harmful bacteria.

What Is Being Done to Improve Fort Belvoir's Water Quality?

Fort Belvoir

The Directorate of Installation Support of Fort Belvoir is continuously striving to provide better service to its customers. Drinking water projects which have recently been completed, or are currently in progress, include: annual flushing of the water distribution system; removal of active water mains in areas where buildings have been removed or demolished; installation of sampling stations, operation of a chlorination booster station; water main replacement in the residential housing areas; construction of a new pump station at the Commissary; water storage tank improvements; installation of a state of the art water distribution control system; installation of a new water main to the North Post Golf Course Club House.

Fairfax County Water Authority

Fairfax County Water Authority is dedicated to meeting emerging federal water quality regulations. A new state-of-the-art drinking water treatment facility in Lorton, which will replace the existing Lorton and Occoquan treatment plants, is scheduled to be completed and in operation by late 2003. This facility, the Fred P. Griffith, Jr. Water Treatment Plant, will be initially capable of producing 120 million gallons of drinking water daily. In addition, construction of a new raw water pumping station which

will pump water from the Occoquan Reservoir to the Griffith Water Treatment Plant is scheduled to be ready for use by December 2002. More information on these projects is available on the Authority's web site: http://www.fcwa.org.

Abbreviations and Definitions

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The tables on the next page show the results of our monitoring for the calendar year 1999. In the tables and elsewhere in this report you may find terms and abbreviations you might not be familiar with. The following definitions are provided to help you better understand these terms:

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Total Coliform: A bacteria test which indicates that potentially harmful bacteria may be present.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the

MCLGs as feasible using the best available treatment technology. In developing the standards EPA assumes that the average adult drinks two liters of water each day throughout a 70-year lefe span. EPA generally sets MCLs at levels that will result in no adverse health effects for some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

ppm: Parts per million or milligrams per liter (mg/L). Corresponds to one penny in \$10,000.

ppb: Parts per billion or micrograms per liter (ug/L). Corresponds to one penny in \$10,000,000.

pCi/L: Picocuries per liter, a measure of radioactivity in water.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

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DISTRIBUTION SYSTEM WATER QUALITY

Microbiological Contaminants

This table lists the results of our microbiological testing, which is required by the EPA. Because Fort Belvoir analyzes less than 40 samples per month, the MCL requirement is that there be no more than one total coliform positive sample per month for all of the samples collected from our distribution system. In addition, the MCL is exceeded whenever both a routine and a repeat sample are total coliform positive and at least one is also fecal coliform positive.

MICROBIOLOGICAL CONTAMINANTS RESULTS (Monitored by Fort Belvoir)

	EPA	Drinking Water Standards	Fort Belvoir's Results	MCL Exceeded	Meets	Major Source in	
	MCLG MCL		Fort Belvoir's Results	(Yes/No)	EPA Stds.	Drinking Water	
Meets EPA Stds.	0	Presence in more than I sample each month.	Dec 1999- I positive (repeat negative)	NO	YES	Naturally present in the environment	
Major Source in Drinking Water	0	A routine sample and a repeat sample are total coliform positive and one is also fecal coliform positive.	Dec 1999- I positive (repeat negative)	NO	YES	Human and animal fecal waste.	

Lead and Copper

Infants and young children typically are more vulnerable to lead in drinking water than the general population. Lead and copper are monitored in 32 of our customers' homes. The Lead and Copper Rule requires that 90% of the samples from high-risk homes must have levels less than 0.015 ppm of lead and 1.3 ppm of copper. The number and location of sample sites sites are based on Fort Belvoir's population and plumbing conditions. The EPA requires us to analyze the first water drawn out of the faucet in the morning. Since water sits in your plumbing system's pipes overnight, it can contain dissolved lead and copper. Because of Fort Belvoir's past excellent lead and copper results, we have been placed on ultimate reduced monitoring, requiring us to collect 30 samples every three years. Lead and copper results were last collected in 1998, and the next lead and copper sampling event is scheduled for the year 2001. If you are concerned about potential elevated lead levels in your home's water and would like to minimize their levels, simply flush the tap water for 30 seconds to two minutes prior to using for cooking or drinking. For more information on lead and copper in drinking water, call the Environmental and Natural Resource Division at (703) 806-4007.

LEAD AND COPPER RESULTS (Monitored by Fort Belvoir)

	EPA Drinking Water Standards	Fort Belvoir Results	Number of Sites at Fort Belvoir	AL Exceeded	Meets EPA	Major Source in Drinking Water	
	Action Level (AL)	90th percentile	Exceeding AL	(Yes/No)	Stds.		
Copper	1.3 ppm	0.052 ppm	0	NO	YES	Corrosion of household plumbing systems	
Lead	I5 ppb	2 ppb	0	NO	YES	Corrosion of household plumbing systems	

Total Trihalomethanes (TTHMs) and Five Haloacetic Acids (HAA-5)

Trihalomethanes (THMs) and haloacetic acids (HAAs) are compounds that can be formed when drinking water is disinfected with chlorine. The chlorine combines with naturally occurring organic matter in the water to form THMs and HAAs. Fairfax County regulates its chlorination process to minimize THM and HAA formation. These disinfection byproducts are suspected carcinogens and are regulated by the EPA. The EPA currently has a limit of 100 parts per billion (ppb) for TTHMs based on a quarterly running average for the entire system. Fort Bevoir's system-wide average is well below the EPA limit (see table below). This limit will be furthered lowered to 80 ppb in 2001. In addition, an HAA-5 limit of 60 ppb is expected to become effective in 2001.

TOTAL TRIHALOMETHANE AND HAA-5 RESULTS (Monitored by Fort Belvoir)

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	EPA Drinking	Water Results	Fort Belvoir	Fort Belvoir	Meets EPA	Major Source in				
	Running Annual Average MCL (ppb) MCLG (ppb)		System Running Annual Avg. (ppb)	System Range (ppb)	Stds.	Drinking Water				
TTHMs	1001	0	54	30 - 81	YES	By-product of drinking water disinfection				
HAA-5	NRL ¹	0	50 ²	26-73	N/A	By-product of drinking water disinfection				

I MCLs of 80 ppb for TTHMs and 60 ppb for HAA-5 are proposed in the Interim Enhanced Surface Water Treatment Rule (IESWTR) that is expected to become effective in January 2001.

SUMMARY OF FINISHED WATER CHARACTERISTICS

FINISHED WATER CHARACTERISTICS (Monitored by Fairfax County Water Authority)

Components			Lorton and J.J. Corbalis Water Treatment Plants			
	MCLG	MCL	Average	Minimum	Maximum	Major Source in Drinking Water
Atrazine (ppb)	3	3	0.08	0.05	0.10	Runoff from herbicide used on row crops
Bromoform (ppb)	NRL	NRL	0.7	ND	1.5	By-product of chlorination
Chloroform (ppb)	NRL	NRL	45.8	38.4	53.0	By-product of chlorination
Bromodichloromethane (ppb)	NRL	NRL	25.7	14.7	36.5	By-product of chlorination
Chlorodibromomethane (ppb)	NRL	NRL	9.2	2.6	16.1	By-product of chlorination
Total halonitriles (ppb)	NRL	NRL	6.12	2.78	13.50	By-product of chlorination
Total ketones (ppb)	NRL	NRL	4.12	1.80	8.67	By-product of chlorination
Chloropicrin (ppb)	NRL	NRL	1.06	ND	3.04	By-product of chlorination
Chlorohydrate (ppb)	NRL	NRL	5.18	0.87	13.9	By-product of chlorination
Haloacetic acids (5) (ppb)	NRL	NRL	42.0	15.8	82.0	By-product of chlorination
Cyanogen chloride (ppb)	NRL	NRL	1.57	ND	3.91	By-product of chlorination
Barium (ppb)	2	2	0.05	0.03	0.06	Erosion of natural deposits; discharge of drilling wastes; discharge from metal refineries
Fluoride (ppm)	4	4	0.87	ND	1.07	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate [as Nitrogen] (ppm)	10	10	1.49	0.42	3.41	Runoff from fertilizer use; leaching from septic tanks or sewage; erosion of natural deposits
Beta/photon emitters (pCi/L) ²	0	50	4.00	1.90	6.80	Decay of natural and man-made deposits
Alpha Emitters (pCi/L)	0	15	0.70	0	1.80	Erosion of natural deposits

NRL: no regulatory limit

Testing of Process Water

The Fairfax County Water Authority monitors the process water and the finished water. Turbidity is a measure of the cloudiness of water in units called NTU (nephelometric turbidity unit). Turbidity in excess of 5 NTU is just noticeable to the average person and is usually caused by suspended matter or impurities that interfere with the clarity of water. Turbidity has no health effects and is not a direct indicator of health risks. However, turbidity is monitored because it is a good indicator of the effectiveness of the filtration system. Turbidity levels are measured by Fairfax County Water Authority during the treatment process after the water has been filtered, but before disinfection. The turbidity level of filtered water shall be less than or equal to 0.5 NTU in at least 95% of the measurements taken each month, and shall at no time exceed 5 NTU.

TURBIDITY RESULTS (Monitored by Fairfax County Water Authority)

	MCL	MCLG	Average Annual Turbidity (NTU)	Highest Single Measurement (NTU)	Lowest Monthly % Samples Meeting Treatment Technique Turbidity Limit	Major Source in Drinking Water
Turbidity	TT	TT	0.09	0.44	100%	Soil runoff

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ND: non-detect, laboratory analyses indicate that the contaminant is not present

I Testing performed in 1998. The State allows monitoring for these contaminants less than once per year because the concentrations of these contaminants do not change frequently.

2 The MCL for Beta particles is specified as 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for Beta particles.

Source Water Characteristics

Tap water comes from surface waters (rivers, lakes, streams, ponds, or reservoirs) and ground water (springs, wells). Bottled waters are generally derived from springs, wells, and public water systems. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animal or human activity. Contaminants that may be present in source waters include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic tion, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- volatile organic chemicals, which are by-products of industrial processes and petroleum production. These contaminants can also come from gasoline storage, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

Source Water Assessment and Protection

In accordance with the 1996 Amendments to the Safe Drinking Water Act (SDWA), the Virginia Department of Health (VDH) has developed a comprehensive program to find better ways to protect our water sources. The Fairfax County Water Authority has partnered with VDH to conduct a detailed source water assessment and develop a source water protection program. After the assessment is conducted, you will be provided with information about potential sources of contamination and measures being taken to reduce or eliminate the sources of contamination.

The activities performed, which are just beginning, must be completed by October 31, 2001. The Fairfax County Water Authority will conduct an inventory of potential sources of contamination within the watershed above each intake and field survey land use activities and potential

sources of contamination within a five-mile radius upstream of each intake.

The potential sources of contamination inventory above the Occoquan Reservoir will begin with the total area draining directly to the reservoir, downstream of Lake Jackson and the free-flowing portion of Bull Run (approximately 70 square miles). At the Potomac River, a contaminant inventory will be performed on the drainage area upstream of the intake including the Broad Run and Sugarland Run tributaries to the Potomac River. This area is approximately 100 square miles.

In the future, the Water Authority hopes to expand on this work by performing an inventory on the entire 590 square mile Occoquan watershed and a larger area of the Potomac watershed, as well as working with neighboring water suppliers to obtain additional information about the Potomac.

People at Risk

Some people may be more vulnerable to contami-Organic chemical contaminants, including synthetic and nants in drinking water than the general population. Immuno-compromised persons (such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders), some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care providers about drinking water. EPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Do You Have Any Questions?

The point of contact at Fort Belvoir for water quality information is **David Bolton**, Water Quality Program Manager with the Environmental and Natural Resource **Division** (703-806-4007) or environmental@belvoir.army.mil. For questions or information on the Fairfax County Water Authority treatment facilities and treatment processes, contact the Authority at 703-698-5800. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791) or on EPA's website at:

http://www.epa.gov/safewater/hfacts.html.